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REMARKS

In the Final Action dated June 1, 2007, claims 17 and 19-25 are pending and are under consideration. Claims 17 and 19-25 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. Claims 17 and 19-25 are rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite.

This Response addresses each of the Examiner's rejections. Applicants therefore respectfully submit that the present application is in condition for allowance or at least in a better condition for appeal. Favorable consideration of all pending claims is therefore respectfully requested.

Claims 17 and 19-25 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. The Examiner alleges that the claims contain new matter by reciting " $a_{\max}=n:j_{\max}$  and  $k_{\max}\geq n$ " in claim 17; a three-unit structure consisting of SD unit, D0j unit and ED unit in claim 20; the phrase "step (g) is performed by sequences (D0j, D1k)' complimentary to the flag sequences (D0j, D1k) immobilized to a DNA capillary" in claim 21, and the phrase "each of the units of the flag sequences (D0j, D1k) is an orthonormal nucleotide sequence" in claim 24.

Applicants respectfully submit that the specification provides sufficient descriptive support for the above-mentioned recitations. However, in order to favorably advance prosecution, Applicants have canceled claims 20, 21 and 24 without prejudice, as well as the recitation " $a_{\max}=n:j_{\max}$  and  $k_{\max}\geq n$ " in claim 17. Applicants reserve the right to file a continuation application to pursue the subject matter of claims 20, 21 and 24. As such, the rejection of Claims 17 and 19-25 under 35 U.S.C. §112, first paragraph, as allegedly as allegedly containing new matter is moot. Withdrawal of the rejection is therefore respectfully requested.

Claims 17 and 19-25 are rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite.

In paragraphs 8-14 of the Final Official Action, the Examiner alleges that claim 17 is vague because it is not clear whether contents within the square brackets of certain phrases are used to further limit terms prior to the square bracket or are parts of the term.

Applicants have amended claim 17 to clarify the language. Applicants respectfully submit that claim 17, as amended, is clear. Contents within the square brackets of certain phrases are used to further delineate the term prior to the left square bracket. Applicants also submit that to further clarify the language of the claim with respect to the target nucleic acids and the flag sequences, the phrase "target nucleic acids (N1, N2, ...Nn)" in the preamble of claim 17 has been amended to "target nucleic acids (Fa, Sa) ...wherein Fa are [F1, F2, ...Fn]; Sa are [S1, S2 ... Sn]; (Fa, Sa) are [(F1, S1), (F2, S2), ... (Fn, Sn)]." Applicants have also amended the phrase "four units SD, D0, D1, and ED" to "four units SD, D0j, D1k, and ED ... wherein j and k are arbitrary natural numbers."

In paragraph 15 of the Final Official Action, the Examiner alleges that claim 17 is vague by reciting "preparing probes Aa [A1, A2,... An] and probes Ba [B1, B2, ... Bn] to convert target nucleic acids (Fa, Sa) into flag sequences (DOj, D1k)." The Examiner is concerned with the converting process and requests clarification.

Applicants have amended claim 17 to clarify the language. Applicants respectfully submit that claim 17, as amended, no longer recites the word "convert" and is clear.

In paragraph 16 of the Final Official Action, the Examiner alleges that claim 19 is vague and indefinite in view of step (f-1). The Examiner contends that it is unclear whether the PCR recited by step (f-1) of claim 19 is identical to the PCR in step (f) of claim 17. In order to

clarify the claimed subject matter, Applicants have amended claim 19 to refer to step (e) of claim 17. Claim 19, as amended, also recites "dissociated" flag sequences. Support for this amendment can be found in the specification, e.g., on page 42, line 18 to page 43, line 8. More specifically, Applicants submit that the flag sequence is dissociated in step (e) of claim 17, and then the dissociated flag sequence is amplified by PCR. (See Fig. 6 (g)). Further, the second binding molecule (indicated by white circle ○ in Fig 6 (h)) and a substance which makes a pair with this (indicated by black circle ● in Fig. 6 (h)) are bound together to recover the flag sequence. After the recovery of the flag sequence, the flag sequence is amplified by the PCR (Fig. 6 (j); PCR in step (f) of claim 17). Applicants submit that by adding the step of claim 19, the signal can be amplified rapidly.

The Examiner contends that since claim 17 does not describe a "first" binding molecule, it is unclear how claim 19 can have a "second" binding molecule. To clarify the language of the claim, Applicants have amended claim 17 to recite a "first binding molecule" in step (a). Applicants respectfully submit that the first binding molecule in step (a) of claim 17 is a molecule that is bound to probe Aa. See steps (a) and (d) of claim 17 and binding molecule "B" in Fig. 5 (a). Therefore, Applicants submit that the binding molecule of claim 19 that corresponds to white circle ○ in Fig. 6 (h) is named as the "second" binding molecule.

In view of above, Applicants respectfully submit that claim 19, as amended, is clear and not indefinite.

In paragraph 17 of the Final Official Action, the Examiner alleges that the recitation "the first binding molecules" in claim 22 has insufficient antecedent basis.

In response, Applicants respectfully submit that claim 17, as amended, clearly recites "a first binding molecule" in step (a) and "the first binding molecules" in step (d). Claim 22

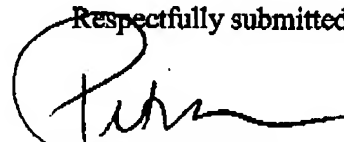
depends from claim 17. As such, there is sufficient antecedent basis for the recitation of the phrase "the first binding molecules." Additionally, Applicants submit that the state, in which a substance that makes a pair with the first binding molecule is fixed to a bead, is illustrated in Fig. 5 (e). In Fig. 5 (e), the substance (indicated by a cross) that makes a pair with the first binding molecule is fixed to the bead (indicated by a large white circle). Applicants submit that the specification exemplifies, e.g., in Experimental Method (page 44, line 18), a method of reversing a probe with use of a magnetic bead (see page 45, line 11).

In paragraph 18 of the Final Official Action, the Examiner alleges that claim 20 is vague and indefinite. Applicants respectfully submit that in view of the cancellation of claim 20, the rejection with respect to claim 20 is moot.

In view of the above arguments and amendments, Applicants respectfully submit that Claims 17, 19, 22-23 and 25 are clear and not indefinite. The rejections with respect to Claims 20-21 and 24 are moot in view of the cancellation of these claims. Applicants submit that the rejection of Claims 17 and 19-25 under 35 U.S.C. §112, second paragraph, is overcome and withdrawal thereof is respectfully requested.

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



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